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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,994	06/23/2005	Cesar Agra-Gutierrez	07812.0057-00	1364

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EXAMINER
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LEE, RIP A

ART UNIT	PAPER NUMBER
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1796

MAIL DATE	DELIVERY MODE
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03/13/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/508,994	<b>Applicant(s)</b> AGRA-GUTIERREZ ET AL.	
	<b>Examiner</b> RIP A. LEE	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 45-92 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 45-92 is/are rejected.
- 7) ☒ Claim(s) 49 and 50 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> .                                  | 6) <input type="checkbox"/> Other: ____.                          |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :09-27-2004; 09-16-2005; 02-02-2006.

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## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 49 is objected to because of the following informalities: Please replace “middle density” with “medium density.” Also, please replace “and high density polyethylene” with “or high density polyethylene.” Appropriate corrections are required.
2. Claim 50 is objected to because of the following informalities: Please replace “and linear low density” with “or linear low density.” Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 73-79 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 73 is drawn to a polymer composition comprising a flash calcined clay, which encompasses several series of clay such as montmorillonite/smectite, kaolinite, illite, chlorite, brucite, *etc.* The disclosure appears to be enabling for manufacture of compositions comprising flash calcined kaolin clay only. Therefore, it is deemed that the claims contain subject matter not described in such a way as to enable one skilled to make and/or use the invention with other classes of flash calcined clay.

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***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 45-50, 52-59, 61-68, 73-82, and 84-91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robertson *et al.* (U.S. 3,951,680) in view of Kotusch (U.S. 6,334,894) and Schuhmann *et al.* (U.S. 5,277,970).

Robertson *et al.* discloses a filled polyolefin composition comprising up to about 40 wt % of calcined kaolin treated with chromium containing coupling agent (claim 1). Polyolefins are commercially available as Profax and have a density of about 0.90 (low density polyethylene), and other polyolefin such as polypropylenes are suitable with the invention (col. 2, lines 40-44). The reference does not disclose use of flash calcined kaolin.

The prior art of Kotsusch discloses methods of preparing flash calcined kaolin in order to reduce the specific gravity of the mineral filler. Kaolin prepared in this fashion has a feed particle size of less than 0.5  $\mu\text{m}$  and at least 50 wt % have an average particle size of less than 2  $\mu\text{m}$ . Flash calcined product may be milled and classified further (col. 4, lines 52-62). Also, flashed calcined kaolins have a specific gravity of less than 2.00 (col. 5, line 5). Kotusch explains that reduction in specific gravity is advantageous in that

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a higher percentage of filler may be added to a material without increasing the weight of the overall composition and impairing the strength of the material. The inventor also teaches specific end use for flash calcined kaolin as filler/extender in polymer (col. 5, lines 5-10). The combination of references would have suggested to one having ordinary skill in the art that flash calcined kaolin of Kotusch may be used as the calcined kaolin component in compositions of Robertson *et al.* The skilled artisan would be motivated to use flash calcined kaolin so that more filler can be used, resulting in material with enhanced mechanical properties. Also, polyolefins would appear to have a blue or purple coloration due to the presence of chromium complex (claims 4 and 5). One skilled in the art would have found it obvious to use flash calcined kaolin in order to be able to vary the color to a wider extent where more filler may be incorporated into the resin. For these reasons, it would have been obvious to one having ordinary skill in the art to use flash calcined kaolin in compositions of Robertson *et al.*

Robertson *et al.* does not disclose use of titanium dioxide, however, at the time of the instant invention, use of titanium dioxide as opacifying pigment in polyolefins was well-established in the art. For instance, Schuhmann *et al.* teaches use of titanium dioxide (particle diameter of 0.20  $\mu\text{m}$ ) for imparting color to polypropylene compositions; paragraph [0039]. And in view of the fact that Kotusch implies that flash calcined kaolin and titanium dioxide may be used in combination in order to obtain a pigmented material (col. 5, lines 16-20), one of ordinary skill in the art would have found it obvious to incorporate titanium dioxide in the polyolefin compositions in order to obtain the desired color of polyolefin resin. While there is no disclosure of the relative amounts of flash calcined kaolin and titanium dioxide which may be used, it is the examiner's position that the ratio of flash calcined kaolin to titanium dioxide is a result-effective variable (MPEP 2144.5) since the amount used clearly affects the degree of coloration of the polyolefin product. Hence, the choice of a particular amount of each component (such as the amount in present claims) is a matter of routine experimentation and would have been well within the skill level of, and thus obvious to, one of ordinary skill in the art. At the very least, one having ordinary skill would have found it obvious to start with a 1/1 ratio and vary the amount to arrive at the desired color.

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Robertson *et al.* does not disclose a specific end-use for inventive compositions. Since Schuhmann *et al.* discloses that filled polyolefin compositions find use in the manufacture of film, one having ordinary skill in the art would have found it obvious to use the composition of Robertson *et al.* for making film, and since polyolefin films are well-known in the art, the skilled artisan would have expected such an embodiment to work with a high degree of success.

While the references do not disclose the specific sequence of mixing of components recited in claim 86, it is maintained that one having ordinary skill in the art would have found it obvious, in absence of any showing of criticality or unexpected results, to arrive at the claimed method of mixing clay and titanium dioxide filler. The selection of any order of performing process steps is *prima facie* obvious in absence of new or unexpected results. *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA, 1930).

Robertson *et al.* is silent with respect to the refractive index of the polymer resin, however, in light of the fact that the polymer resin (polyolefin, polypropylene, polyethylene) is substantially the same as that recited in the instant claims, a reasonable basis exists to believe that the resin of the prior art exhibits the claimed refractive index. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

8. Claims 69 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robertson *et al.* in view of Kotusch and Schuhmann *et al.*, and further in view of Chokai *et al.* (JP 11-5852).

None of the previously cited references teaches incorporation of additional filler. Chokai *et al.* teaches that calcium carbonate is used as a pigment for imparting pearlescent luster to polyolefin films. One of ordinary skill would have found it obvious to use calcium carbonate, as disclosed in Chokai *et al.* in the compositions of Robertson *et al.* in order to impart pearlescent luster to resulting films and thereby enhance visual appeal of the final product.

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9. Claims 45-58 and 62-92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki *et al.* (U.S. 3,725,520) in view of Kotusch (U.S. 6,334,894).

The prior art of Suzuki *et al.* relates to manufacture of porous thermoplastic film or sheet in which at least one thermoplastic resin selected from polypropylene, polyethylene, polyvinyl chloride, and polystyrene (col. 4, lines 14-17; claim 2, examples), is combined with 20-50 parts by volume of filler selected from kaolin, titanium dioxide, and calcium carbonate (claim 1). Typical compositions contain a combination of filler, for instance, mineral filler to impart porosity and titanium dioxide to impart color and opacity (col. 10, line 65). Suzuki *et al.* does not disclose use of flash calcined kaolin.

The prior art of Kotsusch discloses methods of preparing flash calcined kaolin in order to reduce the specific gravity of the mineral filler. Kaolin prepared in this fashion has a feed particle size of less than 0.5  $\mu\text{m}$  and at least 50 wt % have an average particle size of less than 2  $\mu\text{m}$ . Flash calcined product may be milled and classified further (col. 4, lines 52-62). Also, flashed calcined kaolins have a specific gravity of less than 2.00 (col. 5, line 5). Kotusch explains that reduction in specific gravity is advantageous in that a higher percentage of filler may be added to a material without increasing the weight of the overall composition and impairing the strength of the material. The inventor also teaches specific end use for flash calcined kaolin as filler/extender in polymer (col. 5, lines 5-10). The combination of references would have suggested to one having ordinary skill in the art that flash calcined kaolin of Kotusch may be used as the calcined kaolin component in compositions of Suzuki *et al.* The skilled artisan would be motivated to use flash calcined kaolin so that a greater volume percentage of filler can be used, resulting in material with desired barrier properties with no loss in mechanical properties.

While Suzuki *et al.* does not impose limitation on the relative amounts of kaolin and titanium dioxide which may be used, the working examples show use of about 10/1 to 6/1 ratio of filler to titanium dioxide (col. 7, line 41 and 56). It is the examiner's position that the ratio of flash calcined kaolin to titanium dioxide is a result-effective variable (MPEP 2144.5) since the amount used clearly affects the air permeability and



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modulus of the thermoplastic product. Hence, the choice of a particular amount of each component (such as the amount in present claims) is a matter of routine experimentation and would have been well within the skill level of, and thus obvious to, one of ordinary skill in the art. At the very least, one having ordinary skill would have found it obvious to start with a 1/1 ratio and vary the amount to arrive at the desired color.

Suzuki *et al.* does not disclose use of combinations of mineral filler, *i.e.*, kaolin and calcium carbonate, however, it would have been obvious to one having ordinary skill in the art to combine the filler disclosed in the reference in order to optimize the barrier property and mechanical property of the resin. Therefore, it would have been obvious to one having ordinary skill in the art to use a combination of flash calcined kaolin and calcium carbonate in the invention of Suzuki *et al.*, and thereby arrive at the subject matter of claims 69 and 70, because each member of the combination is known individually to perform the same chemical function, and the person with ordinary skill in the art would have expected such a combination to work. *In re Kerkhoven*, 205 USPQ 1069, 1072 (CCPA 1980); *In re Lindner*, 173 USPQ 356, 359 (CCPA 1972).

While the references do not disclose the specific sequence of mixing of components recited in claim 86, it is maintained that one having ordinary skill in the art would have found it obvious, in absence of any showing of criticality or unexpected results, to arrive at the claimed method of mixing clay and titanium dioxide filler. The selection of any order of performing process steps is *prima facie* obvious in absence of new or unexpected results. *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA, 1930).

Suzuki *et al.* is silent with respect to the refractive index of the polymer resin, however, in light of the fact that the polymer resin (polypropylene, polyethylene, polyvinyl chloride, polystyrene) is substantially the same as that recited in the instant claims, a reasonable basis exists to believe that the resin of the prior art exhibits the claimed refractive index. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

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10. Claims 59 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki *et al.* (U.S. 3,725,520) in view of Kotusch (U.S. 6,334,894), and further in view of Sekutowski *et al.* (U.S. 4,740,538).

Suzuki *et al.* does not teach use of silane coupling agent, however, at the time of the instant invention, use of silane coupling agents was well-established in the art. Sekutowski *et al.* teaches treatment of kaolin filler with organosilane coupling agent in order to improve dispersibility of the filler into thermoplastic resins (claims 1-11). The routineer in the art appreciates the positive impact of homogenously dispersed filler on the mechanical properties and appearance of the thermoplastic product. Thus, it would have been obvious to one having ordinary skill in the art to utilize a coupling agent in order to enhance dispersion of flash calcined kaolin in the thermoplastic compositions of Suzuki *et al.*, and since this practice is well-known in the art, one having ordinary skill in the art would have expected such a modification to work with a high degree of success.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu S. Jagannathan, can be reached at (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

/Rip A. Lee/  
Primary Examiner, Art Unit 1796

March 5, 2008